IRCMS 5.3.2

Integrated Reliability Centered Maintenance System (for MS-DOS)

Naval Air Systems Command
Patuxent River, MD 20670-1626

INTEGRATED RELIABILITY-CENTERED MAINTENANCE SYSTEM (IRCMS)

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APPENDICES

INTEGRATED RELIABILITY-CENTERED MAINTENANCE SYSTEM (IRCMS)

1.0 **SYSTEM OVERVIEW**: The IRCMS is a tool for performing and documenting a Reliability-Centered Maintenance analysis, including identifying Age Exploration requirements. The program follows the RCM logic contained in NAVAIR 00-25-403.

1.1 **Software Questions:** Contact the Naval Air Systems Command (NAVAIRSYSCOM) RCM Project Team. A listing of the current staff can be found on the RCM Project Team's homepage at http://www.nalda.navy.mil/3.2/rcm.

2.0 **OPERATING REQUIREMENTS**: Before operating this software, ensure that the computer it will reside in meets the requirements of the software.

2.1 **Hardware Requirements**: IBM PC or PC compatible with the following attributes:

1. 386 CPU (or better)
2. 640k RAM (at least 510k free)
3. 40 Mb hard drive (more is better)
4. DOS 3.1 (or greater)
5. Mouse (highly desirable)

2.2 **Software Requirements:** The software package contains the IRCMS program files in a self-extracting Zip file (PIRCMS.EXE).

2.2.1 **Config.sys File:** The software requires that the CONFIG.SYS file be changed to Files = 80. It is also recommended that Buffers be set to 30. Remember that if changes are made, the computer must be rebooted for the changes to take effect.

NOTE: Memory resident programs may need to be removed in order for the software to run properly.

2.3 **Operator Requirements**: It is highly recommended that the user of this software have a working knowledge of NAVAIR 00-25-403 and this User's Manual. If training is needed, contact NAVAIR for information.

3.0 **INSTALLING THE IRCMS**: Create the directory IRCMS53 for the program and documentation files. Copy the PIRCMS.EXE file into this

directory. Run the PIRCMS.EXE file to explode the program files necessary to run IRCMS.

NOTE: If updating to IRCMS5.3.1 from a previous version of IRCMS which has had measurement bases added, it is necessary to overwrite the new measurement base file (MB_ARR.MEM) with the MB_ARR.MEM file from the previous version of IRCMS to retain the added measurement bases.

4.0 **USING THE IRCMS**

4.1 **Mouse or Keyboard?**: IRCMS allows the use of both mouse and keyboard. It is important that one or the other be selected and used until becoming familiar with how the IRCMS works. The keyboard commands correspond to the location of the light blue menu bar on the screen, while the mouse commands correspond to the position of the mouse pointer. Therefore, mixing the keyboard and mouse may inadvertently close an analysis.

NOTE: The light blue menu bar will always return to the End Item column (discussed later) when the program closes a data entry window.

4.2 **Starting the System**: At the DOS prompt, go into the IRCMS program directory (IRCMS53), then type **IRCMS.** The program header screen will appear, followed by a blank blue screen with a menu bar at the top which has the following selections:

File Edit Reports Tools Utility Window Help

Selection is made using the mouse or by pressing the Alt key in combination with the first letter of the menu selection (Example: **Alt-F** for the Files menu).

4.3 **Menu Bar Description:** Selecting any one of the menu bar topics activates the associated window. Prior to accessing a dataset, only the File, Utility, and Help menus have active selections. Once a menu has been pulled down, use the left/right arrow keys to move from menu to menu. Available options within each menu are highlighted in black, while inactive ones are light blue.

4.3.1 **File (Alt-F)**: The Files window allows the selection of one of the following options: Start a New Dataset, Copy a Dataset to a disk or another subdirectory, Open a Dataset for editing, addition, or conversion, Delete a Dataset, Update AWS data, Move Dataset Branches, Setup Printer, or Quit.

4.3.1.1 **Converting Existing RCM Data**

4.3.1.1.1 Before converting AWS data into the IRCMS5.3.1, the directory in which the AWS data resides must be known. Choose “Update AWS Data” from the File menu. Then choose the directory which contains the AWS data (the screen will not show the data files that are in the chosen directory). If the directory chosen contains AWS data, the user will be prompted for additional information. The IRCMS will notify the user if the directory selected does not contain AWS data.

4.3.1.1.2 To convert existing RCM datasets (from versions 5.0, 5.1 and 5.2), chose “Open Analysis” from the File menu. Chose the directory and dataset from the “Open” window. The system will provide notification that the dataset needs conversion and then prompt the user for additional information. During conversion, some data may not fit into the new data fields. The excess data will be stored on the “justification and comments” screen. IRCMS alerts the user that the data is in the “justification and comments” screen in one of two ways:

a. If the new field is a text field, it will read “SEE MEMO.”

b. If the new field is a numeric field, it will be filled with 9’s, for example: 9999.9.

4.3.2 **Edit (Alt-E)**: The Edit window is used as a word processing editor inside the “justification and comments” field. It allows the user to copy, cut, and paste text, and find key words. Text from any field or memo screen can be marked to be cut from one area and copied elsewhere. To mark specific text, place the cursor at the beginning of text to be marked, hold down the left button, then drag the cursor across the text to be marked. Marking text can also be done by holding down the Shift key and using the arrows to cover the necessary text. Marked text can be cut or copied using the features in the Edit menu. Simply select the feature to be performed. Cut or copied text can then be pasted in another field using the Edit->Paste selection. Move to the new area and select Paste from the menu. The cut or copied text will appear in the new area. The feature will save time when entering similar failure mode descriptions, justifications, functions, etc.

4.3.3 **Reports (Alt-R)**: This menu option contains all of the reports that can be generated by the IRCMS. Select the desired report and whether it is to be previewed on screen, printed out, or send to a file. Screen Preview is the default selection.

4.3.4 **Tools (Alt-T)**: This menu allows the user to add conversions between the measurement bases, add different measurement bases, store parts information, enter acceptable

probabilities of failure (discussed in the NAVAIR 00-25-403 manual), edit the acceptable probability of failure table, and print acceptable probability of failure table. Each menu subsection has an input screen on which to record data as well as a screen which lists the pertinent information.

4.3.4.1 **Conversion Table:** This table is used to hold all user input conversions between measurement bases. It is accessed by activating the Tools menu and selecting Conversion Table. It has similar options to the Measurement Base Table window. To add a conversion, select the “add” button from the Conversion window. Another window will appear which allows the appropriate numerator and denominator to be entered. For example: 30 flight hours per month would be 30 F/T. When finished, use the “Save” button to save the record.

4.3.4.2 **Measurement Base Table:** This table contains the measurement bases used in an analysis. It is accessed by activating the Tools menu and selecting Measurement Base Table. A window will appear containing a list of program provided measurement bases. Menu options appear on the right hand side of the window. Options include Add, Edit, Delete, Default, and Done. To add a new measurement base, choose the Add button. A window will appear asking for the measurement identifier, its common name, and its common abbreviation. When complete, simply save the record. The record can be edited later by selecting it from the list with the mouse or positioning the light blue bar on the line of interest, then selecting Edit. To delete a record, move the bar to the desired measurement base and select the Delete button.

4.3.4.3 **Cost Table**: Information pertaining to the cost of doing an analysis is stored in this table. Procedures for using it are the same as for the other Tools menu option. Make it a practice to record the requested information in this menu after each analysis session.

4.3.4.4 **Parts Table**: This table is used to store specific information about selected parts and part numbers.

4.3.5 **Utility (Alt-U)**: The Utility menu contains a calculator, a randomizing function, and a shell to the operating system (OS).

4.3.6 **Window (Alt-W)**: The Window menu allows an opened window to be moved using keyboard strokes.

4.3.6.1 **Window Movement**: The IRCMS allows opened windows to be repositioned on the screen for best visibility. Two windows are always present: the Summary window (purple), and the

Control Center window (light blue/gray). Each window is boxed by a double line. To move a window using the keyboard, **type Alt-W**, which opens the Window menu. Included in the menu will be a list of the windows that are currently open on the screen. Use the arrow keys to highlight the window to move and **press <ENTER>**. The window title will highlight. Go back into the Window menu **(Alt-W)**, highlight the Move selection and **press <ENTER>**. The active window box will flash. Use the arrows to move the window to its new position. Finish the procedure by **pressing <ENTER>**. If a mouse is being used, move the cursor to the window to be moved, **click the left button** to select it (the window title will highlight) then move the cursor to the title line of the window, **hold down the left button** and **drag** the window to its new position. Release the button when finished.

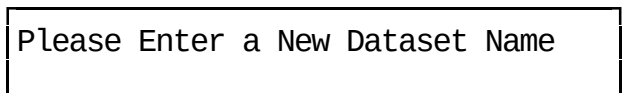
4.3.7 **Help (Alt-H)**: Help contains information about the present screen, help on how to perform certain functions within the IRCMS, a glossary of terms, and information about the IRCMS identifiers.

4.3.7.1 **Editing Help**: The Help Editing feature can be used to add information that is deemed beneficial in defining, for example, a certain field or term. Move the cursor to the field of interest, then press **F2**. The Help screen for that field will appear and will be editable. When the editing is finished, press Ctrl-W to save. A screen will appear showing the title for that help entry. Press Escape or click on the yellow square in the top left of the screen to finish and return to the data input area.

4.4 **Datasets**

4.4.1 **Description**: The dataset is the "file drawer" where data is stored. It consists of 53 files, including database files, index files, and memo files. All files in the same dataset have the same first six characters, followed by numbers that represent the different database files.

4.4.2 **New Datasets**: To start a new dataset and get to the main program screen, select the Files menu and use the arrow keys or the mouse to place the bar on “New.” **Click the left mouse button** or **press <ENTER>**. A new window, similar the one below, will appear in the center of the screen.



This is to give the dataset an overall title. Enter the name of the dataset, for example, "A-6", in the block and press <ENTER>. Datasets can be stored under the same directory as the program files. **Select "OK"** to start the dataset file building process. The IRCMS will build the files needed for the new data. The user will be notified when the build process is completed by replacing the new file window with the Control Center screen.

5.0 **CONTROL CENTER**:

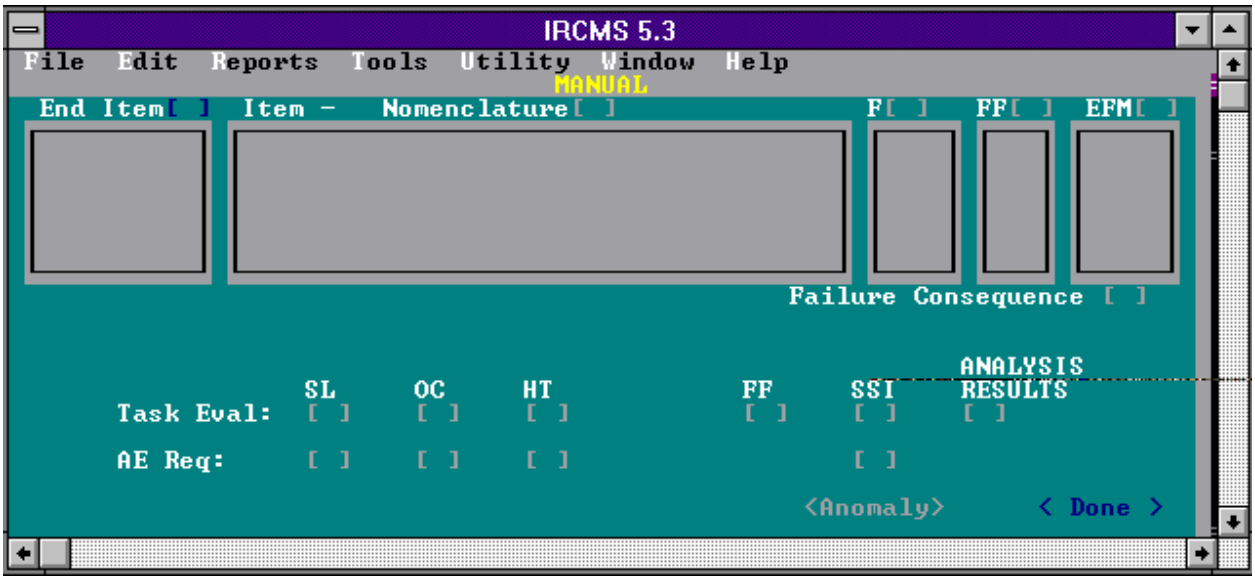
5.1 **Introduction**:

The Control Center screen is the area from which all analyses, except for packaging, and reports are completed. A mouse is especially advantageous here.

5.2 **Navigation and Use**:

5.2.1 **Selecting Elements**: The IRCMS allows the user to move about the screen to select data elements, e.g., end items, items, functions, etc. To select an element in a column with the mouse, move the cursor to it, **click the left mouse button once** to highlight it, then **double click** to select. If using the keyboard, **use the left/right arrow keys** to highlight the desired element and **press <ENTER>**. To open data analysis windows from the **[ ]** selection using the mouse, move the cursor to the **[ ]** and **click once**. If using the keyboard, use the arrow keys to move to the **[ ]** (it will turn brown/white), then **press <ENTER>**.

5.2.2 **Control Center Screen**: The Control Center Screen is used to access the specific data areas. These are listed across the top of the Control Center window. They are: (End Item), (Item), (F)unction, (FF)Functional Failure, and (EFM)Engineering Failure Mode. When starting an analysis, the column underneath each section title will be blank except for a light blue menu bar in the End Item column. Next to each column title is a [ ] box. The boxes are used to open data entry windows for each column. There is also a data entry block for Failure Consequences, Service/Lube (SL) tasks, On Condition (OC) tasks, Hard Time (HT) tasks, Failure Finding (FF) tasks, Structurally Significant Item (SSI) tasks and Analysis Results. A √ (check mark) in the box signifies that data is in that dataset segment. Other boxes in the window denote areas for AE task data.



NOTE: A "➢" will appear to the left of a column entry when it is selected. A " √" also appears in the corresponding **[ ]**. Once an EFM is selected, the " √" not only appears in the EFM **[ ]**, but also in any task block that contains data for that EFM.

5.2.3 **Starting the Analysis**: To start the analysis, **press the right arrow key or use the mouse** to get to the **[ ]** next to End Item. If using the keyboard instead of the mouse, the **[ ]** will change color to brown/white. **Press <ENTER> or left mouse button to select** adding an End Item.

NOTE: Each dataset can contain as many end items as the user wishes, or each dataset may be used to contain only one end item.

A screen requesting End Item data will appear. The data should be entered as completely as possible. After the last field is filled out, the <Save> selection is highlighted. **Press <ENTER> to save the data**. If the data is not to be saved, select <CANCEL> and **press <ENTER>**. The program will close the data entry window and, if saved, the end item will be listed under the appropriate column.

5.2.4 **Adding Items**: The next step in the process is to add items contained under the End Item of interest. There will most likely be many items under each End Item. It is recommended that all items be entered before continuing with the analysis. Items are indexed by the user-entered LSACN, WUC, or other suitable numbering system. Doing this will graphically show the functional breakdown of items, even if all the items are not going to be analyzed. The IRCMS uses the breakdown structure in the Item column to help the

analyst to branch the items appropriately. The following example illustrates this:

The E-2 has a rotodome structure system with the rotodome and pylon as selected subsystems. The subsystems are a lower indenture level of the rotodome structure, and are the same indenture level of each other. A bulkhead is a lower indenture of the rotodome itself. To enter this hierarchy into the item column, use following procedure:

Use the arrow/<ENTER> keys or mouse to highlight and select the appropriate End Item from the list at the upper left of the Control Center screen. When selected, the Item **[ ]** will contain a " √" and a "➢" will appear next to the specific End Item selected. Move to the **[ ]** next to the Item selection and select. A blank item information screen will appear. Answer the appropriate information for the rotodome structure subsystem. To add the lower level item, make sure that the rotodome subsystem identifier in the Item column is highlighted with the menu bar and is not selected (no " ➢" next to it), then move to the item **[ ]** and **press <ENTER>, or click with left mouse key**. The item information screen will appear for the user to fill out. Upon saving the information, a window will appear, asking the user to select “Same Indenture Level” or “Lower Indenture Level.” Since the pylon subsystem is an indenture level lower than the rotodome structure, the user should select "lower indenture level." Move to the "OK" box, and **press <ENTER>**. Perform the same routine for the rotodome subsystem. Indenture levels are shown pictorially, as the item listing is indented as indenture levels are lowered.

NOTE: Due to program operation, related items should be entered on the same indenture level rather than on a lower indenture level of the common upper indenture level item. Practice entering items to become familiar with how and where they will be placed.

5.2.5 **Adding Functions**: Once an item has been added to the database (a √ will appear in the [ ]), it can be selected using the **arrow keys** and **<ENTER>**, so that its function(s) may be added. For purposes of the analysis, all items may not have functions attached to them. Such items will be entered only to illustrate continuity in the functional breakdown. Use the arrows or mouse to move between columns to the desire item and select it. The Function block [ ] will light. Select it using the same procedure as was used to select the Item. The Function data entry window will appear for data entry. Upon entering and saving the appropriate data, follow a similar procedure to select a listed function to open the Functional Failure window.

5.2.6 **Adding Subsequent Data**: The procedures for adding Engineering Failure Modes and Failure Consequences are

similar to that used for adding items, functions and functional failures. Select the item, function, and functional failure of interest out of each column. The [ ] for the engineering failure mode(EFM) will light. Select the EFM [ ]. The input screen will open. After entering and saving EFM data, the Failure Consequences input screen can be accessed in the same manner. There is a one-to-one relationship between the Failure Consequences block and the EFM.. Remember that the Failure Consequences block is not used for EFMs attached to structurally significant item functions.

5.2.7 **Selecting for RCM Analysis**: Once data has been filled out through the Failure Consequences block, the RCM task analysis can be performed on the specific engineering failure mode. First select the specific End Item, Item, Function, Functional Failure, and Engineering Failure Mode. The Failure Mode Index (FMI) code, identifying the function, functional failure, and EFM, for example, "F01A01," will appear in the maroon-colored Summary window. The [ ] will light in the lower right part of the Control Center screen under the SL (Service/Lube) task evaluation indicator. Move to this **[ ]** and select it. The SL task input screen will open. Upon entering the appropriate data, the user will be asked if the task is applicable and effective. If the task fails the applicability requirement, many of the fields will be locked out, thus negating the need to answer them. The program will answer the applicability/effectiveness question as "No." When finished entering data, move to the <Save> button and select to save the data or select <Cancel> to exit without saving. If data is saved, the program will place a √ in the SL **[ ]** to show that data has been entered. If the task is applicable and effective, the ANALYSIS RESULTS [ ] to the far right of the screen will be highlighted. The resulting task(s) can be viewed at any time.

5.2.7.1 **Hot Key for EFM Selection**: A hot key has been created so that once an item has been selected, a specific failure mode can be requested automatically. Simply select the Item of interest, then press the F7 key. A window will appear asking for the failure mode number. Enter the FMI, for example, "01A01," then select "OK." The program will automatically select and open the proper function, functional failure, and engineering failure mode.

5.2.8 **Selection of Other Task Evaluations**: The same procedure described above for the Service/Lube task evaluation is used to evaluate the On Condition (OC) task, Hard Time (HT) task, and Failure Finding (FF) task when applicable. The IRCMS follows the NAVAIR 00-25-403 logic for FSIs.

5.2.8.1 **OC Task and HT Task Notes**: The OC task and HT task data input areas have two screens each. The user can

move back and forth between the screens using the <More> and <Prior> buttons at the bottom of the screen.

NOTE: At present, the program does not prevent the user from doing an economic analysis on safety or safety hidden items within the OC task evaluation input screen. However, the decision about task effectiveness for safety items on acceptable and actual probabilities of failure. The OC input screen provides a calculation from the equation, $P_{act} = (1-\Theta)^n$,which substitutes the user input acceptable probability of failure for P_{act} and solves for the number of inspections to be accomplished during the potential to functional failure interval, n. Θ is the probability of detecting the failure during one inspection, is a user input. This should provide the optimum effective inspection interval.

5.2.9 **Age Exploration Block**: Each task type has a corresponding Age Exploration (AE) block under it. If a default answer (D) is given at any time during the RCM analysis, the AE requirements block [ ] for that task will become highlighted. Select the block to input the AE task that will be needed, then answer the associated AE logic questions. The questions are used to prioritize the AE tasks. The second input screen, entered by selecting the **<More>** button in screen one, provides the area in which to enter specifics about the AE task, including length of time to perform the sample, sample size, measurement precision, the task itself, and task costs terms of manpower and materials.

5.2.10 **Anomaly Button**: At times, when data is edited, data will exist which does not follow the RCM logic. When this occurs, the <Anomaly> button will light and the location of the anomalous data will be flagged in red. An explanation for the anomaly can be accessed by selecting the <Anomaly> button.

5.2.11 **Analysis Results**: The analysis results [ ] will become highlighted once an EFM has been entered and the Failure Consequences established. This screen provides a summary of the task analysis. It lists the tasks analyzed, the task intervals, the level of maintenance required, and a packaged interval. The user is prompted to answer a Yes/No question as to whether to accept the task as part of the PM program. This is to let the analyst have some flexibility in case more than one type of PM task was determined to be applicable and effective. The Analysis Results screen can also indicate that REDESIGN of the item is required and no PM listing at the bottom of the screen, according to RCM logic.

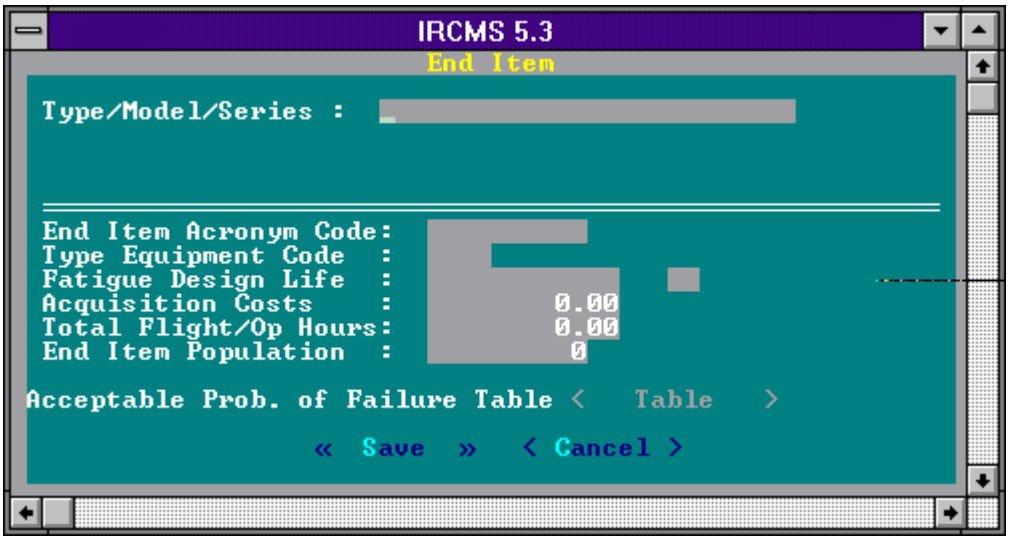
6.0 **DATA INPUT SCREENS**

6.1 Introduction

6.1.1 **Disclaimer**: This section provides notes to aid in entering data in the IRCMS. Not all data fields are covered, as sufficient details are provided in NAVAIR 00-25-403.

6.1.2 **<justification and comments>**: A <justification and comments> button is present on many of the input windows. This activates a memo field to be used for documentation and validation of answers given during data entry. Notes, naming of data sources, and equations used , etc., should be listed here. A memo book is included in the Reports section of the IRCMS which will print out all data from these fields (see Section 7.1). The memo book should be accessed in conjunction with running other reports. To save data in the <justification and comments> field, use the mouse and select the yellow square at the upper left hand corner of the window, or press the <Tab> key on the keyboard. The button for justification and comments will now be upper-cased, "JUSTIFICATION AND COMMENTS," to indicate that the memo field contains data. To leave the memo field without saving, press the <Escape> key.

6.1.3 **Deleting Screens**: Each task evaluation window and AE window has a Delete button. Selecting this button removes all data associated with that data input selection. It is foreseen that the major function of this feature will be to delete anomalous data.



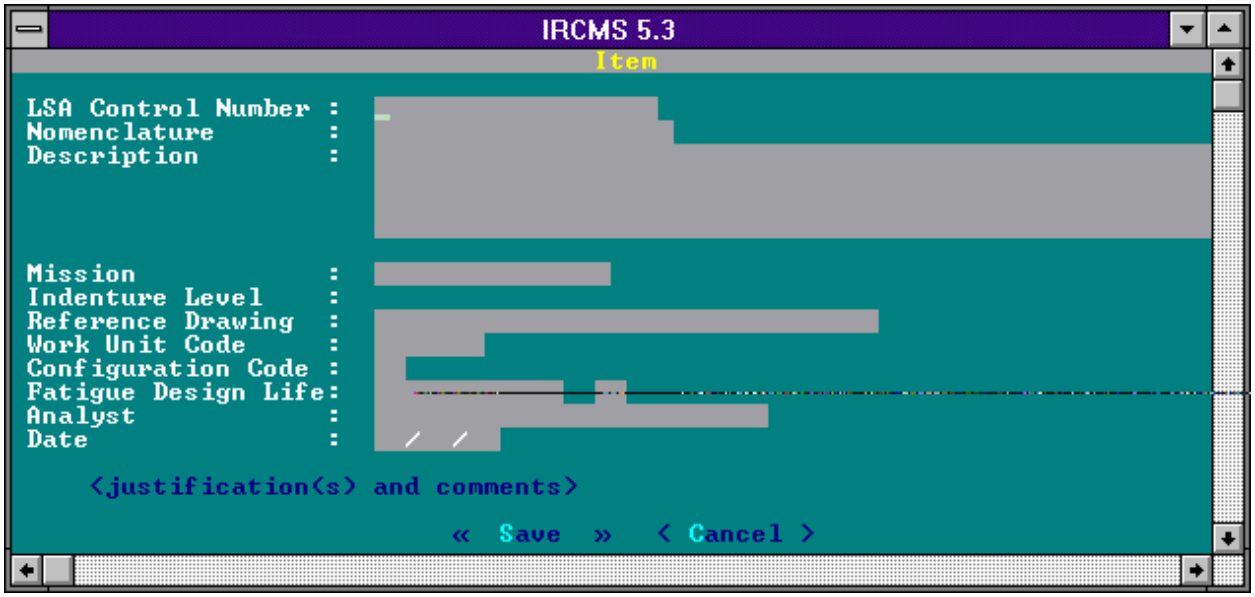
6.2 End Item (1 window)

6.2.1 **End Item Acronym Code**: Is defined in MIL-STD-1388-2B, DED 096, as a code which uniquely identifies the end item. Examples are PATRIOT, TOW, CV HELO, TOMCAT.

6.2.2 **Acquisition Cost**: The unit price of the end item including support costs. Use the best available data for this figure and document the source.

6.2.3 **Acceptable Probability of Failure Table**: This table is used to associate a failure probability with a severity class. The entries would come from contractor or government-generated reliability values.

NOTE: The Type/Model/Series field must be completed before the table is activated.

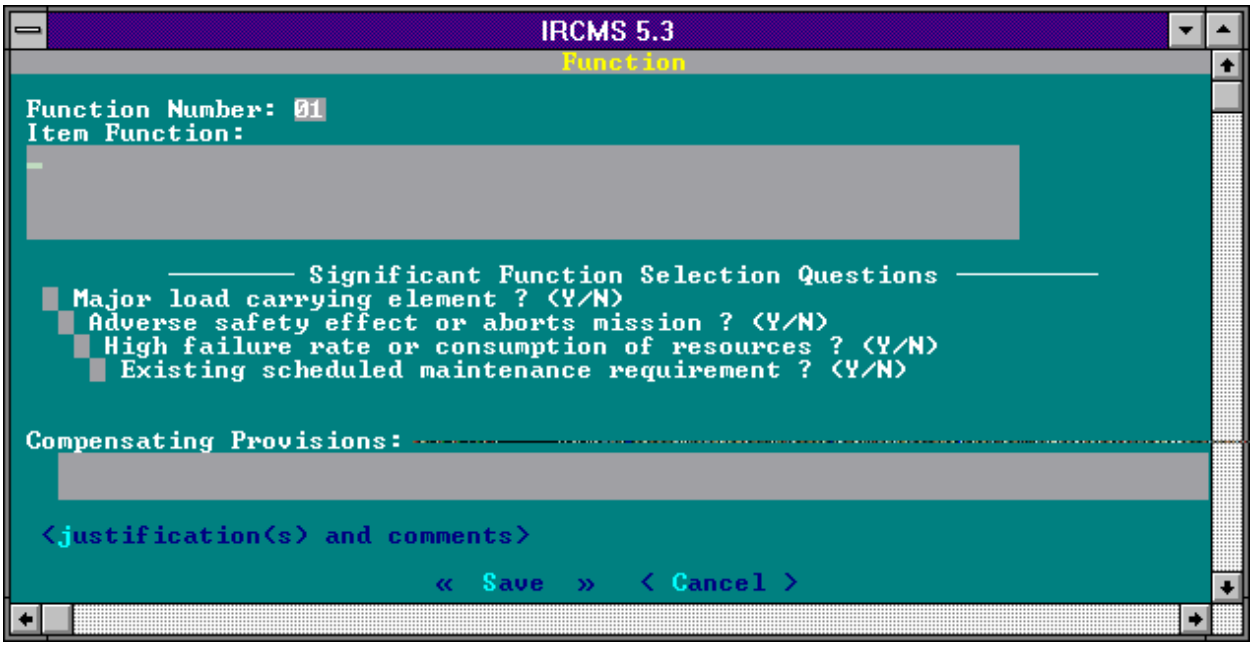


6.3 Item (1 window)

6.3.1 **Item Description**: The description should include the primary components of the item.

6.3.2 **Mission Field**: Identity of the mission(s) for which the item is needed. If it is needed for all missions, enter "All."

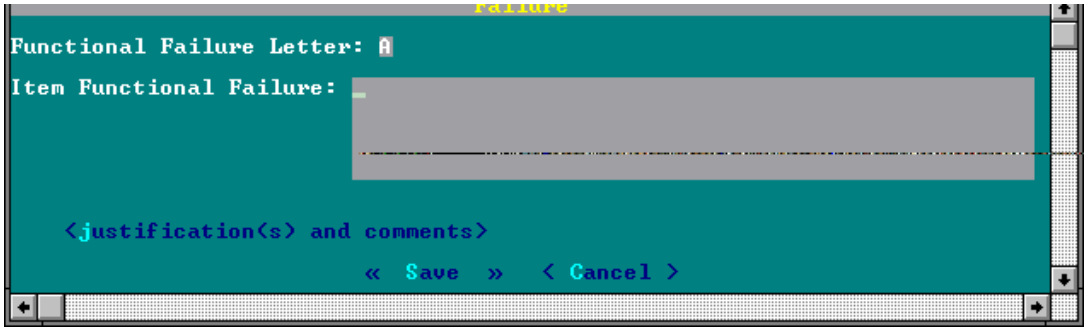
6.3.3 **Configuration Code**: This field can be used to identify placement of items on the end item, such as left, right, upper, or lower.



6.4 **Function (1 window)**

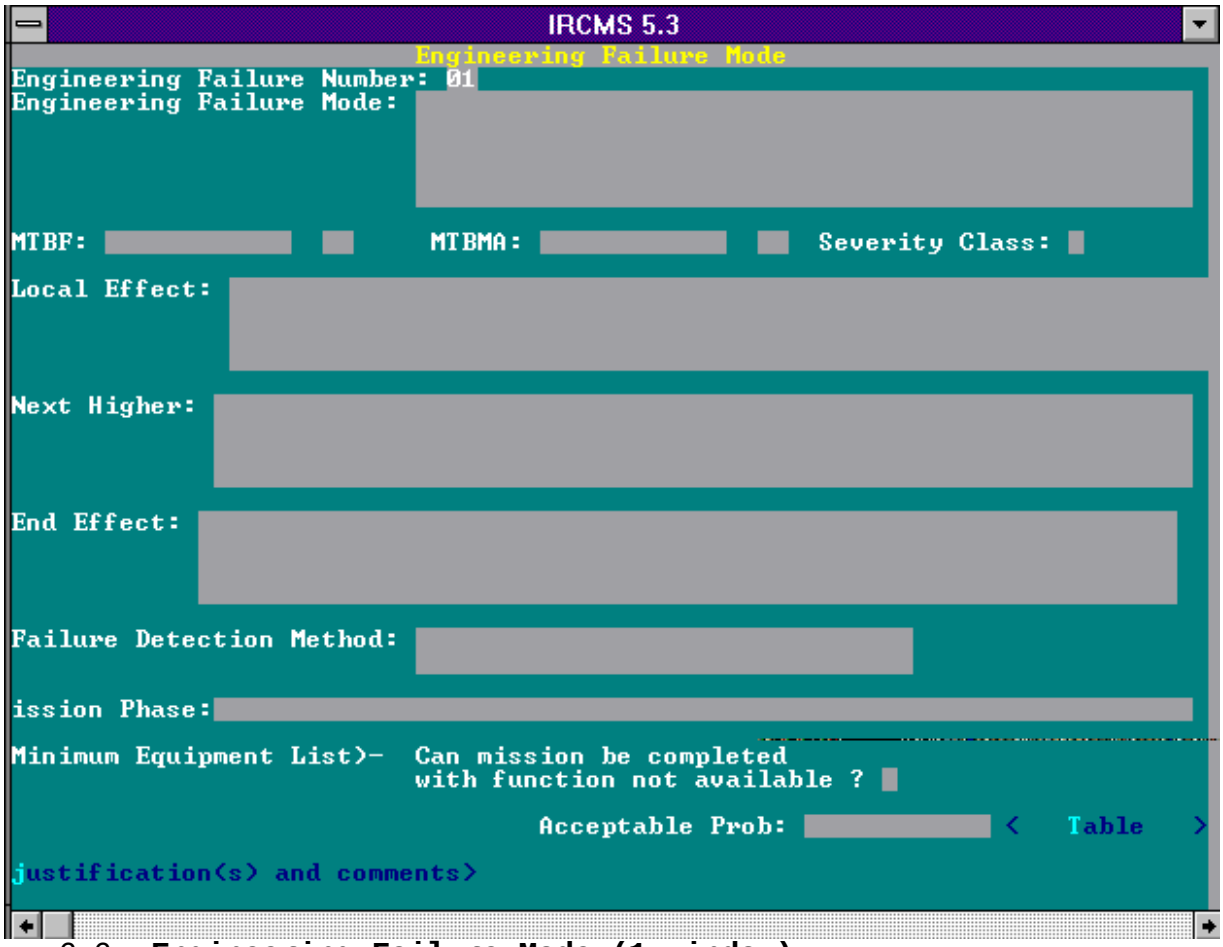
6.4.1 **Function Fields**: All fields are defined in the NAVAIR 00-25-403 manual.

NOTE: Numeric fields in the IRCMS allow the use of scientific notation.



6.5 Functional Failure (1 window)

6.5.1 **Functional Failure Fields:** All fields are defined in the NAVAIR 00-25-403 manual.



6.6 Engineering Failure Mode (1 window)

6.6.1 **EFM Fields:** All fields are defined in MIL-STD-1629A.

6.6.2 **Acceptable Probability of Failure:** An acceptable probability of failure value for each of four severity

classification categories can be entered as default figures by using the table built into the End Item window. A default value may be overridden by entering a numerical figure via the keyboard. Use the <justification and comments> memo field to document the source.

6.7 **Failure Consequences (1 window)**

6.7.1 **Failure Consequence Questions**: All fields are defined in the NAVAIR 00-25-403 manual. Provide the decision basis in the <justification and comments> field.

6.8 **Serv/Lube (1 window)**

6.8.1 **Serv/Lube Questions**: There are three possible answers to the question, "Is the task applicable and effective?" They are (Y) es/(N)o/(D) efault. Answering "D" allows the user to have a task, but also activates an AE requirement.

6.9 **On Condition (2 windows)**

6.9.1 **Potential/Functional Failure Conditions**: On screen one, following the question, "Can a potential failure condition be defined?," there are two fields, titled Potential and Functional. Enter the conditions that define potential and functional failure here. For example, if a 1 inch crack indicates the potential failure, and a 3 inch crack defines the functional failure, these figures would be entered in the blocks as 1 IN and 3 IN, respectively. The conversion from the AWS has no corresponding fields to pull data from for the above fields. The text field in AWS that may have this data would be entered into the <justification and comments> field by the conversion program.

6.10 **Hard Time (2 windows)**

6.10.1 **Field Definitions:** Field definitions for Hard Time task windows are covered in the NAVAIR 00-25-403 manual.

6.11 **Failure Finding (2 windows)**

6.11.1 **Field Definitions**: Field definitions for Failure Finding task windows are covered in the NAVAIR 00-25-403 manual. Probability of detection is on the screen for information purposes only. Task interval selection is described in the NAVAIR 00-25-403 manual.

6.12 **Structurally Significant Item Logic (2 windows)**

6.12.1 **Field definitions**: Field definitions for the structurally significant item screens are covered by the IRCMS help screens and in the NAVAIR 00-25-403 manual.

NOTE: Answering "D" to the SSI logic question is intended to mean that the analyst is considering the task to be applicable and effective, but needs to perform AE to validate the task.

6.13 **Age Exploration Requirements (2 windows)**

6.13.1 **AE Task Prioritization**: The first screen is used to prioritize AE task using the AE prioritization logic. This logic tree is covered in the NAVAIR 00-25-403 manual.

6.13.2 **AE Task Description**: The second screen is used for entering the AE task itself. Ensure that all fields are filled in, since this serves as the basis for the AE Plan Report. "Precision" is the required accuracy of the measurement being made, e.g., to the nearest tenth, hundredth, etc.

7.0 **Reports**

7.1 **Introduction**: The IRCMS is capable of generating many reports from input data. With the advent of the IRCMS, the MIL-STD-2173(AS) worksheet format has been discontinued. To run a report for a particular item, select the item, pull down the Reports menu (**Alt-R**) and select the desired report. Three options are available: print the report, preview the report on screen (the default), or save the report to a TXT file. Each report is described briefly below:

7.1.1 **Significant Item Count**: This report lists the number of FSIs, SSIs, and NSIs for each Item.

7.1.2 **Failure Mode and Effects Summary**: This report lists the function, functional failure, engineering failure modes, failure effects, detection method and applicable mission phase(s). The report can be generated in MIL-STD-1629A format (selection 1) or in the IRCMS format (selection 2).

7.1.3 **PM Requirements**: The PM Requirements Report provides information pertaining to each task resulting from the logic. It lists the task type, task, maintenance level, engineering and packed intervals, and offset for start of task.

7.1.4 **Failure Consequences Analysis**: This report lists the answers to the first two failure consequence questions and the resulting failure consequence.

7.1.5 **Serv/Lube Task Evaluation**: This report provides all information related to each applicable and effective service/lubrication task. It includes the task, task interval, direct maintenance man-hours, skill level required, and logic answers.

7.1.6 **OC Task Evaluation**: This report contains the same type of information provided in the Serv/Lube task evaluation. In addition, it includes maintenance information about repair of potential and functional failures.

7.1.7 **HT Task Evaluation**: This report contains the same type of information provided in the Serv/Lube task evaluation. In addition, it includes information on item survival percentages and wear out ages.

7.1.8 **FF Task Evaluation**: This report contains the same type of information provided in the Service/Lube task evaluation.

7.1.9 **SSI Task Evaluation**: This report provides fatigue-related information, logic answers, assigned structural rating factors, task types, task descriptions, and task intervals.

7.1.10 **Age Exploration Plan Summary**: This report lists each AE task that was generated as a result of default answers. It also lists task requirements such as sample size and measurement precision.

7.1.11 **O Level PM Summary**: O-level subset of the PM Requirements Report.

7.1.12 **I Level PM Summary**: I-level subset of the PM Requirements Report.

7.1.13 **D Level PM Summary**: D-level subset of the PM Requirements Report.

7.1.14 **Parts List**: This is a breakout of the parts information input during the analysis (see Tools menu selection).

7.1.15 **Measurement Base Lookup Table**: This is a listing of available measurement bases. It includes both the original IRCMS and user-generated measurement bases. (see Tools menu selection).

7.1.16 **Cost Summary**: This is a breakdown of costs involved in performing and sustaining the RCM analysis based on analyst time entries.

7.1.17 **Memo Book**: This is a consolidation of all <justification and comments>s fields, broken out by item, function, functional failure, engineering failure mode, and task type. A Memo Book will be developed for all items if only the end item is selected. If an item is selected, a book will create for that item only. It is a good idea to print this out for use with any of the task summaries.

7.1.18 **LSA Table**: This table lists the answers given for each failure mode addressed in the RCM analysis. It provides an input to the LSAR B data table. The task interval given is the packaged interval, since that is what support (facilities, manpower, etc.) will be geared toward. This report is available only when an item is selected and nothing below it is selected.

7.1.19 **Failure Mode/Results PM**: This is a master report which provides failure modes, RCM analysis results, task evaluation results, and memos in a single document.

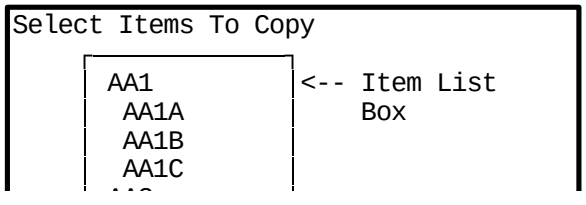
8.0 **MOVING DATA**:

8.1 **Introduction**: The Files menu contains Copy, Move and Delete commands. These commands allow data to be moved or copied from one dataset to another, or deleted from the dataset, if necessary. Only the data from the lowest selected area in the gray columns will be acted upon. For example, if the functional failure area is selected for copying, only that functional failure and the engineering failure mode(s) data resulting from that functional failure will be copied.

8.1.1 **Copying Data From the Item Level**: One or more top level items may be copied at one time. In addition to the selected items, one or more of their respective lower indenture levels may be selected for copying.

Note: however, that a top level item and a lower indenture level item of another top level item cannot be copied at the same time.

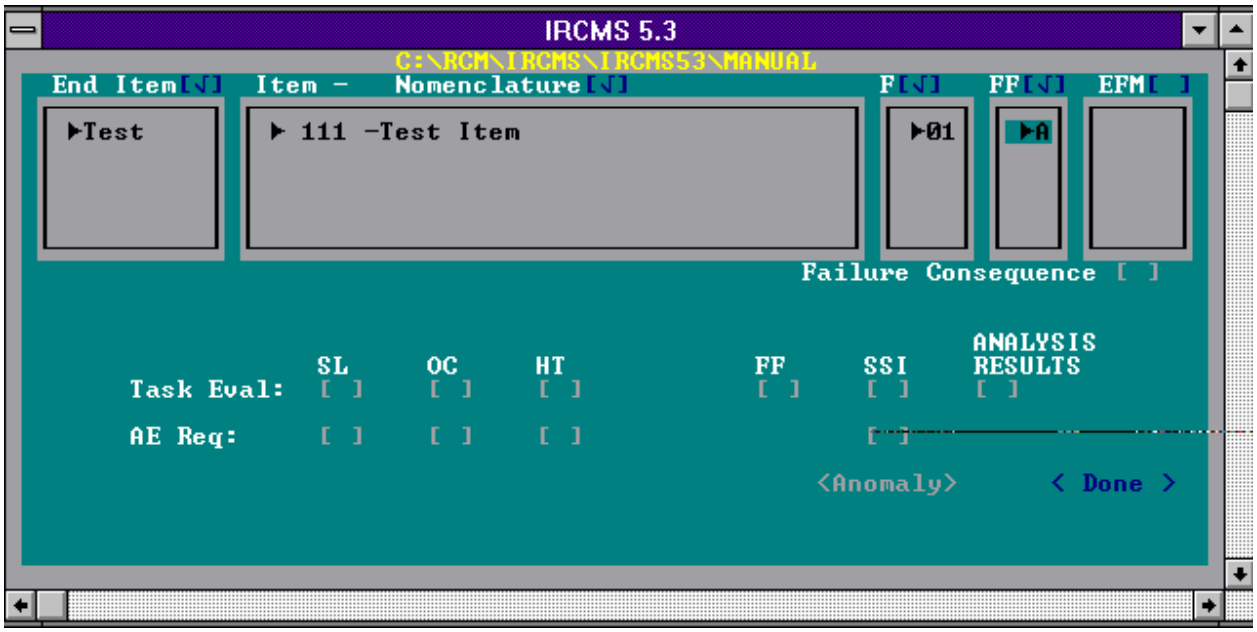
Identify the item to be copied by selecting the desired End Item and Item. Move the light blue menu bar to the selected item and double click. Open the Files menu (**Alt-F**) and select Copy Branch. A screen will appear similar to the following:



Move to and select the item to be copied (double click with mouse/<Enter> with keyboard). If a top level item that has items in lower indenture levels, such as AA1 above, is selected, the top level item and all of its lower indenture level items will be copied. If a lower indenture level item, such as AA1B, is selected, only that item will be copied. More than one top level item, such as AA1 and AA2, can be selected at the same time. Again, in this case, all of AA1s lower indenture level items will be selected automatically. As each item is selected, a " ➢" will appear next to it. When the selection process is finished, click the <Select> button. The program will indicate that it is copying the selected items. To abort the procedure, select the Exit button.

Double click with mouse/<Enter> with keyboard the End item with which the copied item is to be associated. Click on the gray block where the data is to go before selecting Paste Branch from the File menu. Select Paste Branch from the Files menu. The program will ask if the copied item is to be at the same indenture level or lower indenture level to the item denoted in blue. (see paragraph 5.2.3). Upon answering, the program will attach the item to its new position.

8.1.2 **Copying Data Below the Item Level**: To copy a data segment that is below the item level, such as a function, functional failure, or engineering failure mode, do the following: Select the desired data and double click it. Move the light blue menu bar to the selected segment and double click desired data. For example, to copy a functional failure, move the bar to the functional failure letter that is selected.



Example selecting functional failure for copying (Note bar over ➢A)

Open the Files menu (**Alt-F**) and select Copy Branch. A screen will appear which indicates what data will be copied (an "X" will appear next to each data type). Select Copy to continue the process or Cancel to terminate it. Click the gray box of data block that was cut, where the data is to be copied to. This may mean going to another dataset, selecting another item, another function, etc. Element selection level must be the same, e.g., function to function, item to item, etc., for the Paste Branch to be activated. Select Paste Branch in the Files menu. The IRCMS will attach all the copied data to its new location.

8.1.3 **Cutting Data**: This is very similar to the Copy procedure, except that it actually moves the data from one location to another. Procedures are the same as in paragraph 8.1.1, except that Cut Branch is selected to perform the operation. Remember that in order to paste the branch, elements have to be selected to the same location.

8.1.4 **Clearing Data**: This selection allows data to be deleted. Identify the data to be deleted by double clicking the element at the point to start deletion. Select Clear Branch in the Files menu. A screen will appear which indicates what data will be deleted (an "X" will appear next to each data type). **It is very important that this screen be checked carefully before continuing to ensure that only the data to be deleted is selected!** Then on the bottom of the screen click the <Select> button. The program will remove the selected data.

8.1.5 **One Further Note About Paste** Copied or cut data can be pasted to more than one place, including different datasets.

8.2 **Copying an Entire Dataset**: This feature copies an entire dataset from one place to another. To perform the operation, select Copy Dataset from the Files menu list. A window will appear which lists the source datasets that are available. Select the dataset to be copied. Different drives and subdirectories within this window can be chosen in order to select the desired dataset. Once a dataset has been chosen, a new window will appear asking for a new dataset name. Enter a new name. Move to the Directory button and select. An additional window will appear that provides a list of available drives and subdirectories. Use the mouse or tab/arrow keys to navigate this window. To select a different drive, move onto the drive letter and press <Enter> or click and hold with the left mouse key. A list of drives to choose from will appear. To start the copying process, move to the Open or Select buttons (they do the same thing) and select. The program will indicate that the dataset is being copied. When the process is finished, the program will return to the Menu selection area.

APPENDIX A

Software Changes from IRCMS 5.2 to IRCMS 5.3

1. The requirement for a serial number and activation key has been deleted.
2. “Type”, “Model”, “Series”, “Suffix” have been combined into one “End item” field.
3. The following fields have been extended to 254 characters: function description, functional failure description, engineering failure mode description, local effects, next higher assembly effects, end item effects, and task description.
4. The following fields have been extended to 145 characters: compensating provisions, system/subsystem description.
5. Placement of a newly entered item within the end item’s hierarchical structure has been clarified.
6. The safety failure consequence question has been rewritten for clarification.
7. Non-mandatory justification fields have been added for the failure consequence questions.
8. The three cost effectiveness questions that appeared on the failure consequence screen have been removed. A pop-up question, “Would you like to include cost of lost operational time?,” now appears when the On condition Calculate button is selected.
9. The “minimum equipment list” answer is now non-mandatory.
10. Fields for “analyst” and “date” have been added to the item screen and to reports. The analyst table has been deleted.
11. The age exploration data analysis section has been deleted.
12. A new report, “Failure Mode/Resulting PM”, has been added to provide FMECA data, task evaluation data, and memo data in one master report.
13. Report output can now be saved to a file.
14. The acceptable probability of failure “Calculate” button has been replaced with a “Table” button. Values for acceptable probability of failure can now be chosen from a table based on engineering failure mode severity class.
15. The IRCMS now gives the analyst the option to evaluate additional tasks even after an applicable and effective task

has been found. This will allow the most cost effective task to be chosen. This change required that the PM requirement screen be replaced with an RCM Results screen.

16. Additional information has been added to many reports.

17. Data can now be converted from AWS versions 4.1, 4.1.1, 4.1.2, and IRCMS 5.0, 5.1, 5.2. The user can select whether to back up data before conversion, and where the backup will be stored. The data conversion option is now located under the File menu.

18. A new field has been added to the age exploration screens. It identifies the information required from the age exploration task.

19. The structures screens have been modified to reflect RCM logic changes contained in the RCM guidance manual, NAVAIR-00-25-403.

20. The packaging module has been deleted.

21. The ASPA button has been deleted.

APPENDIX B

Software Changes From IRCMS 5.3 to IRCMS 5.3.1

CORRECTED BUGS:

1. When converting data from the Automated Worksheet Software (AWS), the data in the AWS memo files now transfers.

2. Conversion of IRCMS 5.1 data no longer gives the following error "Error SQL column ITMTYPE not found error 1806 line 454".

3. The ACCEPTABLE PROBABILITY OF FAILURE table now transfers data during conversion.

4. Corrected the following error that occurred when adding a measurement base to the measurement base table from any of the task evaluation screens: "TASKDESC not found error 12 line 80".

5. The "Copy data set" option now copies Acceptable probability of failure values to a new dataset.

6. Some cutting and pasting errors have been fixed, but others still exist. To be on the safe side, keep a backup of your data when performing cutting/pasting of data.

IMPROVEMENTS:

1. An on screen example for adding a conversion factor has been added.

2. The new Structurally Significant Item (SSI) logic has been built into the SSI task evaluation screen.

3. Several help screens have been added to the Age Exploration screen 2, and the Item screen.

4. New Structurally Significant Item information has been included on reports.

5. A Justification & Comments button has been included on the failure consequence screen.

6. Packaged interval will open for user input on the Analysis Results screen.

7. Software errors will not immediately abort the program.

APPENDIX C

IRCMS 5.3.1 Table Structure

NOTES:
(1) Tables missing from the following table listing are no longer used by IRCMS, but may still be present in a dataset.

(2) Data Element Description (DED) numbers are included to show relationships between IRCMS data and MIL-STD-1388-2B data. Some IRCMS data are not directly related to the MIL-STD-1388-2B data, so care should be taken when using these DED references.

01. END ITEM

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
EIACODXA	End Item Acronym Code	10 C	96
TYPEEQEA	Type Equipment Code	4 C	480
FATDESLIF	Fatigue Design Life	12 C	
FATDESLIM	Fatigue Design Life MB	2 C	
COPC2	Acquisition Costs	12 N 2	
COPC3	Total Flight Hours	12 N 2	
POPULATIO	End Item population	10 N 0	
MARK	Indicates Packaged	1 L	

02. ITEM

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
LCNAMEXB	Logistic Support Analysis Control Number Nomenclature	19 C	201
DESCRIPT	Item Description	254 C	
MISSION	Mission	15 C	
INDCODHG	Indenture Level	1 N	162

FADNUMFA	Reference Drawing	32 C	89
WRKUCDHG	Work Unit Code	7 C	516
SCF	Configuration Code	2 C	
FATDESLIM	Fatigue Design Life MB	2 C	
FATDESLIF	Fatigue Design Life	12 C	
PARENTLCN	Parent LCN of the item	18 C	
TREE	Shows an Item's parents and children. Used for indexing purposes.	188 C	
JUSTIFY	Justifications and comments	10 M	
ANALYST	Analyst name	25 C	
PREPDATE	Analysis preparation date	8 D	

03. PART

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
REFNUMHA	Part Number	32 C	337
MANUFACT	Manufacturer	35 C	
COMMENTS	Additional information	64 C	

04. FUNCTION

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
RAMNARBB	Item Function	254 C	
SSI	Major load carrying element (Y/N)	1 C	
FSI_1	Adverse safety effect or aborts mission (Y/N)	1 C	
FSI_2	High failure rate and consumption of	1 C	

	resources (Y/N)		
FSI_3	Existing scheduled maintenance (Y/N)	1 C	
FMCNARBJ	Compensating Provisions	145 C	
JUSTIFY	Justifications and comments	10 M	

05. FAILURE

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
FUNCTFAIL	Item Functional Failure	254 C	
JUSTIFY	Justifications and comments	10 M	

06. EFM

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
ENGFAILMO	Engineering Failure Mode	254 C	
MISSPCBL	Mission Phase	64 C	247
FMNNARBGB	Local Effect	254 C	126
FMNNARBGC	Next Higher	254 C	127
FMNNARBGA	End Effect	254 C	125
FMNNARBGF	Failure Detection Method	64 C	129
FMSHSCBI	Severity Class	1 C	362
MEQLINBA	Minimum Equipment List (Y/N)	1 C	243
EFMTBFBF	MTBF	12 C	97
EFMTBFBFM	MTBF MB	2 C	
TMTBMABD	MTBMA	12 C	230
TMTBMABDM	MTBMA MB	2 C	
SAFETY	Safety consequences arise from evident or hidden failure (Y/N)	1 C	
ACCPROB	Acceptable probability of failure	12 C	
JUSTIFY	Justifications and comments	10 M	
EVIDENCE	Evidence of failure to Crew/Operator (Y/N)	1 C	
FAILCON	Failure consequence	2 C	
EVIDJUST	Justification of evident answer	254 C	
SAFEJUST	Justification of safety answer	254 C	

07. SL

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
APPLICABL	Results of Applicability Evaluation for Task (Y/N)	1 C	
EFFECTIVE	Results of Effectiveness Evaluation for Task (Y/N)	1 C	
INTERVAL	Analyzed preliminary task interval	12 C	
INTERVALM	Interval MB	2 C	
LOM	Analyzed Preliminary Level of Maintenance	1 C	
DMMH	Direct Maintenance Man Hours	10 N 1	
LABORSKIL	Level of expertise needed to perform maintenance	2 C	(386, 387)
MATERIAL	Cost of Materials	12 N 2	
TASKDESC	Task Description	254 C	
JUSTIFY	Justifications and comments	10 M	

08. OC

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
DETECTABL	Is it possible to detect reduced failure resistance? (Y/N)	1 C Y/N/D	

MTDRFR	Means to Detect Reduced Failure Resistance	65 C	
DEFPOTFAI	Is it possible to define potential failure by explicit task? (Y/N)	1 C Y/N/D	
POTFAIL	Potential failure condition	12 C	
POTFAILMB	Potential Failure condition MB	2 C	
FUNCTFAIL	Functional failure condition	12 C	
FUNCTFAIM	Functional failure condition MB	2 C	
POTFUNINT	Is the interval between potential and functional failure known, consistence and long enough? (Y/N)	1 C Y/N/D	
IBPAFF	Interval between potential and functional failure	12 C	
IBPAFFMB	IBPAFF MB	2 C	
ACTBPROB	Actual Probability of Failure	12 C	
PAF	Probability of Additional Failure	12 C	
CI1	DMMH to Inspect	10 N 1	
INSPSKILL	Skill level to inspect	2 C	
CI3	Consumable Cost	12 N 2	
CPF1	DMMH to Correct	10 N 1	
CORRSKILL	Skill level to correct	2 C	
CPF3	Spares/Materials	12 N 2	
DMMH	DMMH to Repair	10 N 1	
REPSKILL	Skill level to repair	2 C	
CCM3	Spares/Materials	12 N 2	
PHA	Probability of detection in one inspection	12 C	
DCBR	Data or CBR show task desirability (Y/N)	1 C	
NUMINSP	Number of inspections during the interval	6 N 2	
SEQNAREE	Task Applicability/Effectiveness Justification	64 C	188
INTERVAL	Analyzed Preliminary Task Interval	12 C	208
INTERVALM	Analyzed Preliminary Task Interval	2 C	

	MB		
LOM	Analyzed Preliminary Level of Maintenance	1 C	277
TASKDESC	Task Description	254 C	431
EFFECTIVE	Task effective? (Y/N)	1 C	
JUSTIFY	Justifications and comments	10 M	
TIMELOST	Including cost of lost operational time? (Y/N)	1 C	
XCONTINUE	Do you want to continue (down the logic branch)?	1 C	

10. HT

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
RESTFAILR	Able to restore by rework (Y/N)	1 C	
SETAGE	Is there an age at which no fails occur (if safety) or where prob of failure increases rapidly (Y/N)	1 C	
AGELIFE	Wear out age/Life limit	12 C	
AGELIFEMB	Wear out age/Life limit MB	2 C	
PERSURVIV	% of population surviving to wear out/lifelime	12 C	
ACTBPROB	Actual Probability of Failure	12 C	
PAF	Probability of Additional Failure	12 C	
DMMHBF	DMMH to remove/rework before failure	10 N 1	
SKILLBF	Skill level to remove/rework before failure	2 C	
MATERBF	Spares/materials	12 N 2	
DMMHAF	DMMH to remove/rework after failure	10 N 1	
SKILLAF	Skill level to remove/rework after failure	2 C	
MATERAF	Spares/materials	12 N 2	
DCBR	Data or CBR show task desirability	1 C	
DCBRJUST	Justification for DCBR	64 C	
INTERVAL	Analyzed Preliminary Task Interval	12 C	
INTERVALM	Preliminary task interval MB	2 C	
LOM	Analyzed Preliminary Level of Maintenance	1 C	
TASKDESC	Task Description	254 C	

EFFECTIVE	Results of effectiveness determination (Y/N)	1 C	
BASEDATA	Is default answer given to SETAGE based on real data (Y/N)	1 C Y/N	
JUSTIFY	Justifications and comment	10 M	
XCONTINUE	Do you want to continue (down the logic branch)? (Y/N)	1 C	

11. FF

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
PHA	Probability of detection in one inspection	12 C	
DCBR	Data or CBR show task desirability (Y/N)	1 C	
INTERVAL	Analyzed Task Interval	12 C	
INTERVALM	Analyzed task interval MB	2 C	
LOM	Analyzed LOM	1 C	
TASKDESC	Task Description	254 C	
EFFECTIVE	Results of effectiveness determination (Y/N)	1 C	
JUSTIFY	Justifications and comments	10 M	188

12. ANALYSIS RESULTS

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
TYPETASK	SL, OC, HT, FF, etc.	3 C	
MAININBH	Preliminary Task Interval	12 C	208
MAININBHM	Preliminary Task Interval MB	2 C	
OMLVLCAC	Preliminary Level of Maintenance	1 C	277
TASKIDCA	Task Description	254 C	431

IIPACKO	Packed Task Offset (First occurence of task)	12 C	
IIPACKD	Packed Task Interval	12 C	
IIPACKDM	Packed Task Interval Measurement Base	2 C	
PACKEDLOM	Packaged LOM	1 C	
SELECTED	For ASPA list multi selection	1 L	
INCLUDE	Include/exclude PM req from packaging	1 L	
JUSTIFY	Justifications and comments	10 M	
DOC	IRCMS Copies from file 20.DBF	1C	
HT	IRCMS Copies from file 20.DBF	1C	
GOC	IRCMS Copies from file 20.DBF	1C	
ACCEPT	Accept result? (Y/N - Accept task as a PM requirement)	1 C	

13. AEREQ

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
TYPETASK	Task type	3 C	
Q1	Task assessment question 1 (Y/N)	1 C	
Q2	Task assessment question 2 (Y/N)	1 C	
DMMH	Direct maintenance man hours	10 N 1	
SKILL	Skill level required	2 C	
Q3	Task assessment question 3 (Y/N)	1 C	
Q4	Task assessment question 4 (Y/N)	1 C	
SAMPLESIZ	Sample size	6 N	
MATERIAL	Material costs	12 N 2	
INITINT	Initial interval	12 C	
INTERVALM	Interval MB	2 C	
REPINT	Repeating interval	12 C	
PRECISION	Precision required for sample measures	12 C	
PRECISIOM	Precision MB	2 C	
LOM	Analyzed Preliminary Level of Maintenance	1 C	
TASKDESC	Task Description	254 C	
INCLUDE	Include/exclude AE req in packaging	1 L	
JUSTIFY	Justifications and comments	10 M	
STUPER	Study period	6 N	
STUPERMB	Study period measurement base	2 C	

15. COST

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
STARTDATE	Beginning of analysis	8 D	
ENDDATE	Ending of analysis	8 D	
ANALYST	Analyst performing analysis	22 C	
ROLE	Category of analysis	25 C	
COMMENTS	Additional Information	10 M	
MANHOURS	Analysis man-hours	10 N 1	

16. CONVERT

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
FACTOR	Number of occurrences of numerator per denominator	12 C	
NUMERATOR	Measurement base	2 C	
DENOMINAT	Measurement base	2 C	

18. MEASURE

Field Name	Description	Type	DED
MB	Measurement Base	2 C	
DESCRIPT	MB description	25 C	
STANDARD	MB defined by 1388 2B	1 C	
COMMON	Common abbreviation	4 C	

20. SSI

Field Name	Description	Type	DED
ENDITEMID	End item identifier (TMS)	26 C	179
LSACONXB	Logistic Support Analysis Control Number	18 C	199
FUNO	Function Number	2 C	134
FFLTR	Functional Failure Letter	1 C	
EFMNO	Engineering Failure Mode Number	2 C	
GOC	On Condition (Y/N)	1 C	
DOC	Fleet leader/structural sampling (Y/N)	1 C	
HT	Hard Time Task (Y/N)	1 C	
INTERVAL	Analyzed preliminary task interval	12 C	
INTERVALM	Analyzed preliminary task interval MB	2 C	
LOM	Analyzed Preliminary Level of Maintenance	1 C	
DMMH	DMMH to perform PM	10 N 1	
LABORSKIL	Skill level necessary for PM	2 C	(386, 387)
MATERIAL	Cost of Materials	12 N 2	
TYPESTRUC	Type structure metallic/composite	1 C	
ACCESS	Access (external, internal)	1 C	
DT	Damage Tolerant (Y/N)	1 C	
II	Is the item interchangeable? (Y/N)	1 C	
ILG	Is the item's life greater than or equal to end item life? (Y/N)	1 C	
DETECT	Detectable Crack Life	12 C	
DETECTMB	Detectable Crack Life MB	2 C	
CRIT	Critical Crack Life	12 C	
CRITMB	Critical Crack Life MB	2 C	
RESIDSTRE	Residual Strength Percentage	12 C	
SLIFELIMI	Safe Life Limit	12 C	
SLIFELIMM	Safe Life Limit MB	2 C	
SRF1	Structural Rating Factor 1	1 N	

SRF2	Structural Rating Factor 2	1 N	
SRF3	Structural Rating Factor 3	1 N	
SRF4	Structural Rating Factor 4	1 N	
TYPEDAMAG	Damage Type (fatigue, environmental, accidental)	1 C	
TASKDESC	Task Description	254 C	
FS	Fuselage System	6 C	
WS	Wing Station	8 C	
WI	Water Line	8 C	
JUSTIFY	Justifications and comments	10 M	